Abstract

The autonomous wheeled mobile robots (AWMR) are subjected to high demands concerning stability, controllability and safety. Therefore, it becomes very important to devise the effective and efficient control strategies for such system to get desired system dynamic performance. In this paper the state space model of the system has been developed, the dynamic behavior of the system has been studied and then optimal controllers are designed using full state feedback control strategy. The optimal controllers are designed for various operating conditions using pole placement technique. The dynamic response plots are obtained for various system states considering various operating conditions. The investigations of these reveal that the implementation of optimal controllers offer not only good dynamic performance, also ensure system dynamic stability.

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